

**WHAT IS CLAIMED IS:**

1. A method of treating the effects of the genetic motor neuron disease  
5 Spinal Muscular Atrophy (SMA) comprising:  
  
administering a pharmacologically effective and physiologically acceptable  
amount of vitamin C and at least one ingredient selected from the group consisting  
of: flavonoid, pectin, enteric bacterium, enzyme supplement and any combinations  
10 thereof; and optionally, a pharmaceutically acceptable carrier.
2. The method of claim 1, wherein said flavonoid is citrus flavonoid.
3. The method of claim 1, wherein said flavonoid comprises at least one  
15 flavonoid ingredient selected from the group consisting of: rutin, hesperidin,  
naringin, naringenin 7-B rutinoside, flavonols, quercetin, flavones, phenolics, and  
any combinations thereof.
4. The method of claim 1, wherein said pectin is selected from the group  
20 consisting of: citrus pectin, pomace pectin, and any combinations thereof.
5. The method of claim 1, wherein said pectin is apple pectin
6. The method of claim 1, wherein said enteric bacterium comprises at  
25 least one bacterium selected from the group consisting of *Lactobacillus*  
*acidophilus*, *Bifidobacterium bifidum*, *Lactobacillus rhamnosus*, *Enterococcus*  
*faecium*, *Bifidobacterium adolescentis*, *Lactobacillus plantrum*, and any  
combinations thereof.



7. The method of claim 1, wherein said flavonoid is citrus flavonoid and said pectin is apple pectin.

5 8. The method of claim 1, wherein said at least one ingredient is flavoloid, pectin and enteric bacterium.

9. The method of claim 1, wherein said flavonoid is at least one citrus flavonoid selected from the group consisting of: rutin, hesperidin, naringin,  
10 naringenin 7-B rutinoside, flavonols, flavones, phenolics, and any combinations thereof; said pectin is at least one pectin selected from the group consisting of citrus pectin, pomace pectin, and any combination thereof; and said enteric bacterium is at least one bacterium selected from the group consisting of  
15 *Lactobacillus acidophilus*, *Bifidobacterium bifidum*, *Lactobacillus rhamnosus*, *Enterococcus faecium*, *Bifidobacterium adolescentis*, *Lactobacillus plantrum*, and any combinations thereof.

10. The method of claim 1, wherein said enzyme supplement is at least one enzyme selected from the group consisting of: amylase, protease, lactase,  
20 cellulose, lipase, phytase, sucrase, maltase, and any combinations thereof

11. The method of claim 1, wherein said optional pharmaceutically acceptable carrier is a solid or liquid selected from the group of water, aqueous systems, alcohols, polyols, glycols, mineral oils, vegetable oils, excipient, binder  
25 and any combinations thereof.



12. The method of claim 1, wherein said vitamin C, said at least one ingredient, and said optional pharmaceutically acceptable carrier are in a product form selected from the group consisting of an aerosol spray, pump spray, cream, emulsion, solid, liquid, dispersion, foam, gel and powder.

5

13. A composition for the treatment of the effects of the genetic motor neuron disease Spinal Muscular Atrophy (SMA) in humans comprising:

vitamin C;

10

at least two ingredients selected from the group consisting of: flavonoid, pectin, at least one enteric bacterium, enzyme supplement, and any combinations thereof; and

15

an optional pharmaceutically acceptable carrier.

14. The composition of claim 13, wherein said vitamin C and said at least two ingredients are in pharmacologically and physiologically acceptable amounts sufficient to mitigate the symptoms of SMA.

20

15. The composition of claim 13, wherein said flavonoid comprises at least one flavonoid selected from the group consisting of: rutin, hesperidin, quercetin, naringin, naringenin 7-B rutinoside, flavonols, flavones, phenolics, and any combinations thereof.

25

16. The composition of claim 13, wherein said pectin is selected from the group of citrus pectin, pomace pectin, and any combinations thereof.



17. The composition of claim 13, wherein said pectin is apple pectin.

18. The composition of claim 13, wherein said optional pharmaceutically  
5 acceptable carrier is a solid or liquid selected from the group of water, aqueous systems, alcohols, polyols, glycols, mineral oils, vegetable oils, excipient, binder, powder and any combinations thereof.

19. The composition of claim 13, wherein said vitamin C, said at least  
10 one ingredient, and said optional pharmaceutically acceptable carrier are in a product form selected from the group consisting of an aerosol spray, pump spray, cream, emulsion, solid, liquid, dispersion, foam, gel and powder.

20. The composition of claim 13, wherein said at least one bacterium is  
15 selected from the group consisting of *Lactobacillus acidophilus*, *Bifidobacterium bifidum*, *Lactobacillus rhamnosus*, *Enterococcus faecium*, *Bifidobacterium adolescentis*, *Lactobacillus plantum*, and any combinations thereof.

21. The composition of claim 13, wherein said at least one ingredient is  
20 flavonoid and pectin, and said optional pharmaceutically acceptable carrier is water or aqueous system.

22. The composition of claim 13, wherein said at least one ingredient is  
flavonoids, pectin and at least one enteric bacterium, and said optional  
25 pharmaceutically acceptable optional carrier is a solid or liquid selected from the group of water, aqueous systems, alcohols, polyols, glycols, mineral oils, vegetable oils, excipient, binder, powder and any combinations thereof.



23. The composition of claim 13, wherein said flavonoid is citrus flavonoid, said pectin is pomace pectin, and said at least one bacterium comprises a bacterium selected from the group consisting of *Lactobacillus acidophilus*,  
5 *Bifidobacterium bifidum*, *Lactobacillus rhamnosus*, *Enterococcus faecium*,  
*Bifidobacterium adolescentis*, *Lactobacillus plantum*, and any combinations thereof.

24. The composition of claim 13, wherein said flavonoid comprises at  
10 least one flavonoid selected from the group consisting of: rutin, hesperidin,  
naringin, naringenin 7-B rutinoside, flavonols, flavones, phenolics, and any  
combinations thereof, said pectin is apple pectin, and said at least one bacterium  
comprises a bacterium selected from the group consisting of *Lactobacillus*  
*acidophilus*, *Bifidobacterium bifidum*, *Lactobacillus rhamnosus*, *Enterococcus*  
15 *faecium*, *Bifidobacterium adolescentis*, *Lactobacillus plantum*, and any  
combinations thereof.